

REMARKS

Reexamination of this application is respectfully requested.

The material previously submitted on July 13, 2005 is included herewith, along with the requested statements regarding each of the independent claims, specifically how each newly present claim defines over the Prior Art of record as required. Applicant has identified the added material with a brief introductory sentence which is underlined to assist the examiner in his review, the material inserted into the application where appropriate.

The examiner has objected to the title of the invention as being non-descriptive. Applicant has amended the title to read "TRANSONIC HULL AND HYDROFIELD, MULTIHULL AND ASSOCIATED CONTROL SURFACES" which is indicative of the invention, and therefore is believed to resolve the objection.

In preparing the response to first office action dated 01/12/05, applicant has noticed that his specifications have inadvertently omitted the description of Figs. 48 and 49. These figures are listed in pg. 7 of the Application. Before continuing to discuss the amendment in response to examiner's action of 01/12/05, applicant would like to submit an amendment to add to applicant's specifications the description of Figs. 48 and 49 which were mistakenly left out, with care not to add new matter. There are also added new claims directed to Figs. 48 and 49, and the examiner's review of these claims is much appreciated.

Claim 6 was rejected under 35 U.S.C. 112, first paragraph. Claims 1-5 were rejected as being anticipated by Fuglsang et al. Claim 8 was rejected under 35 U.S.C. 102(b) as being anticipated by Ibata et al. Claims 11 and 12 were rejected under 35 U.S.C. 102(b) as being anticipated by Dorofitel. Claim 13 was rejected under 35 U.S.C. 102(b) as being anticipated by Andersson. Claims 14 and 15 were rejected under 35 U.S.C. 102(b) as being anticipated by Frigard. Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ibata et al in view of Davis. Finally, claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over Ibata et al in view of Davis as applied to claim 9 above, and further in view of Dorofitel.

1. OVERCOMING REJECTION OF CLAIM 1

1 Claim 1 has been rejected on Fuglsang. Fuglsang specifies that his inventions in its broadest  
2 sense requires that “the draft of the vessel lessens when the vessel is moving at speed due to dynamic  
3 lift developed by the movement and whereby because of the change of draft the outer hulls have little  
4 of any effect on buoyancy of the vessel when moving at speed”. (Pg. 6 of 11, paragraph 4).

5  
6 Remarks:

7 Fuglsang does not specify the outer hulls are planning hulls in that statement, or in any other  
8 part of his specifications or claims.

9 The dynamic lift required by Fuglsang is clearly specified by him in either: “one foil or the  
10 like to provide a lifting surface” (pg. 6 of 11, paragraph 9), showing three alternatives of foils in his  
11 Fig. 4: items 25, 25A, and 25B extending width wise below water between his central hull and his  
12 outer hulls (Fuglsang pg. 8, paragraph 6) as shown also in his Fig. 4. These are not planning hulls,  
13 and respectfully, are no reason to reject claim 1, which claims only outer hulls of planning type,  
14 central being displacement.

15 Fuglsang also states, in the matter of planning hulls “alternatively the lifting surface may be  
16 provided by making the central hulls, at least, a planning hull.” Therefore, in the hypothesis that the  
17 outer hulls of Fuglsang were planning hulls, then Fuglsang would teach the use of a trimaran with  
18 three planning hulls, which is different in kind from applicant invention, and his claim 1, which  
19 claims a central hull of displacement type and outer hulls of the planning type. Consequently, in  
20 applicant’s view claim 1 should be allowable over Fuglsang. Applicant furthermore respectfully  
21 indicates that all the art cited by examiner supports the uniqueness of claim 1 as shown in the  
22 following table, in which the length/beam ratio of center hull and length/beam ratio of outboard hulls  
23 of the three patents cited by examiner, clearly show in their planviews, illustrate that of hulls of  
24 trimaran with planning potential at speed for dynamic lift is approximately 4.5, and hulls of trimaran  
25 of displacement type have length/beam ratio of approximately 9 or larger.

Patents	Fig.	Center	Hull			Outer	Hull			(L/B Out/ (L/B)Center
		L	B	L/B	TYPE	L	B	L/B	TYPE	
Fuglsung	2	7	0.8	8.75	Disp	4.2	0.45	9.3	Disp	1.06
Fuglsung	11	6	1.42	4.22	Plane	4.8	0.50	9.6	Disp	2.27
Frigard	12	4.9	1.05	4.66	Plane	3.28	0.62	5.29	Plane	1.13
Doroftel	4.a	7.5	1.10	6.82	Disp	2.70	0.24	11.25	Disp	1.65

The table illustrates clearly the following: art cited by examiner does not show outboard hulls of trimaran with planning when the center hull is displacement type. Moreover, the potential ratios of length/beam of outboard hulls to length/beam inboard hulls are in all these cases greater than one, and not less than 1 (one) or substantially less than 1, as is uniquely claimed by applicant.

According to the above analysis, applicant has amended claim 1 to make it allowable over 35 USC 112 by adding well understood structural parameter of length, beam and length/beam ratios, over Fuglsang, or Fuglsang together with other art quoted, by specifying that the quotient of length / beam ratio of outboard hull divided by inboard hull is less than one (1), as is evident from applicant's Fig. 29 and its pgs. 63 line 27 and 20, which illustrate that ratio as  $6/5 = 0.7$ . Applicant respectfully insists amended claim 1 is now allowable.

Claim 2 is allowable as dependent on claim 1 and further allowable in that it specifies that the outboard hull is capable of dynamic lift with a center displacement hull, and with speed/length ratio of central hull is substantially less than that of the outboard hull, as indicated in applicant's pg. 64 for Fig. 29, line 3.

Claim 3 and 4 are considered allowable as dependent on allowable amended claim 1. Noting examiner's remark that "Transonic" fails to define a specific structure, claims 3 and 4 now include a specific structure clearly supported in specifications pg. 19 lines 1-3. TH is characterized by absence of surface wave making sources such as shoulder, midbody or quarter's curvature in plan view, and relation of draft forward to beam aft, for example 26 in Fig. 12a to 62 in Fig. 14a, or scaled Figs. 18c forward draft to Fig. 16 below it (should have read Fig. 18G; to be amended now since Fig. 16 is prior figure).

Claim dependent 5, which relates to wings of Fig. 20 is allowable upon allowability of Claim

1 1. Nevertheless, to distinguish clearly from some aspects of Fuglsang, Claim 5 is amended to specify  
2 its wing is above water.

3  
4 On allowability of amended claim 6

5 Claim 6 was rejected under 35 UCS 112. It is also stated that the propulsion arrangement  
6 of claim 6 is lacking in disclosure.

7 Claim 6 is directed to Figs. 28b in a catamaran and 28c is a trimaran. Fig. 28b is described  
8 in detail in pg. 62 lines 2-19. Fig. 28c is described in detail in pg. 62 lines 20-25. The propulsion  
9 arrangement is described in pg. 63 lines 9-13 “five water jets of group 332 in Fig. 28b” or “a pair of  
10 two water jets 346 and 348 in Fig. 28c” (lines 12-13 pg. 63), which is qualified in that “for smaller  
11 multihulls”, the “power can be made with batteries of outboard marine engines” (pg. 62 lines 24-25).

12 Applicant respectfully indicates that Figs. 28b and 28c are a unique invention combining:  
13 Outside surfaces parallel to direction of motion as 322 in Fig. 28b, with minimal or no wave making  
14 and minimal friction drag (pg. 62 lines 7-8). Inboard flows between internal sides of the multihull  
15 with convergent flow in plan view as in 326 and 324 in Fig. 28b, tending to cause drag due to  
16 adverse interference tending to raise level of water and added wetted are (pg. 62, line 9).

17 Unique favorable interferences between the rear of the hulls be means of “water accelerating  
18 propulsion means 330 which recover energy from 324 and 326, reducing their drag contribution” pg.  
19 62 lines 15, 16. To overcome rejection on 35 U.S.C. 112, claim 6 has now been amended to read  
20 the above features.

21  
22 On the allowability of amended claim 7.

23 This claim as amended is directly supported by Figs. 35 and Figs. 44 with a language that  
24 specifies the unique configuration and is considered allowable over the art.

25  
26 On the allowability of amended claim 8.

27 This is directed to Figs. 42 and Fig. 43. Applicant agrees that battery power is anticipated  
28

1 by Iyata who uses a marine propeller. However, the uniqueness of the Figs. 42 and 43 is the use of  
2 an air propeller, or a ducted air propeller, to provide auxiliary propulsion for a man powered craft,  
3 a peculiar combination of selective electric driven aerodynamics and man powered hydrodynamics  
4 which is not at all obvious from prior use of air propellers such as in hovercraft or flat planning boats  
5 for swamps, using gas turbines or internal combustion engines as is discusses in pg. 70 lines 13-22.

6 Amended claim 9 is dependent on 8 and is clearly allowable, as well as claim 10.

7 Claims 11, 12, 13, 14 and 15 have been canceled.

8 New claims 16 to 27 are directed to multihulls and are considered clearly allowable by  
9 reasons of the above arguments and corresponding language used.

10 New claims 28 to 39 are directed to Figs. 48 and 49 on articulated flaps. Their respective  
11 specifications are now included by amendment, without adding new matter.

12 On the allowability of independent claim 16:

13 Conventional multihulls are known to generate interference of wave making type, for  
14 example as discussed in US patent 5.178.085.

15 The combination of two hulls of a multihull which have no wave making interference is  
16 therefore unprecedented and this is achieved by combining two transonic hulls as shown in Fig. 28A,  
17 and its related description, from which claim 16 has three requirements:

18 a specific structural description of each hull of the multihulls as meeting critical transonic  
19 geometry

20 a specific individual disposition of surface hydrodynamics ray per hull

21 freedom of interference of the hydrodynamic rays of the hulls in the region between the  
22 transonic hulls

23 The unprecedented nature of these combined features make Claim 16 clearly allowable.

24  
25 On the allowability of independent Claims 21, 24, and 25:

26  
27 Claim 21 is directed to Fig. 28B. To the knowledge of this writer, Fig. 28 is totally without  
28

precedent in its features of defining, by virtue of toe-out angles of each hull relative to a body centerline, a peculiar and unique combination of structural features evident at once from the figure and recited in the claim:

flow between the multihull bodies which is contracting in planview with an intake span between bows larger than an exit span between sterns, and power-driven impeller acting on the water region between said multihulls, which depresses its surface level, yielding a unique hydrodynamic mutual cooperation.

It is respectfully submitted that the unique features of Claim 21 make it clearly allowable.

Claim 24 is also directed to Fig. 28B, but defines the contracting nature of the flow between the multihulls in terms of a central longitudinal axis of the complete multihull body, relative to which the longitudinal axis of each of the multihulls bodies has a small "toe out angle", as recited in the specifications for Fig. 28B, with the impeller located between the multihulls, as also taught in the specifications, to accelerate the flow between the multihull rearwards.

Claim 25 is also directed to Fig. 28B, but recites the perimetrical characteristics of the figure, when toe out is incorporated in transonic hulls, namely:

parallel outer sides of the multihulls define sides of a rectangle  
inner sides of the multihull define sides of a trapezoid, narrow end towards the rear  
power means with impeller accelerating the flow between the inboard sides of the multihull in a downstream direction

Claim 26 is directed to the trimaran of Fig. 28 C, which defines converging flows on each side of the center hull, set in part by toe cut angle of the outer hulls, such that the traverse span opening in planview between the bow of the lateral hulls and the corresponding sides of the central hull is larger than the traverse span opening between the inboard side at the stern of the lateral hulls of the trimaran and the corresponding sides of the center hull, again with impeller means accelerating the flow between the lateral hulls and center hull. This figure and its claim are without precedent.

Claim 27 pertains to a peculiar combination of transonic hulls in a multihull in which the speed to length ration of the outer hulls is specified greater than 3.5 and the central hull at less than

2.5, and is close to specifications for Fig. 31.

On the allowability of Claim 35:

The structure of Figs. 48 and 49 as originally filed, and its claim 35 is without precedent, and is further supported in the specifications content of the last amendment, fourth paragraph of its pg. 3, which specifies "a vessel", a first "movable surface" at the rear of the vessel, and a "second trailing surface" "mounted on the first surface", which enables the unique results of the invention of Figs. 48 and 49.

Claim 28 is similar to claim 35, but made more limited by adhering to the structural details of the first and second surface shown in Figs. 48 and 49 and further available in the specifications of the last amendments, pg. 3 paragraph 5.

Applicant has invented a multihull transonic hull which is superior to those hulls found in the prior art. As such, it is believed that this invention is deserving of protection, and the granting of such protection is respectfully requested.

Applicant is mailing this amendment after expiration of the thirty day response period but within the first month's extension of time permitted by 37 C.F.R. § 1.136 and accompanied by the fee set forth in 37 C.F.R. § 1.17(a). This application is thus believed to be in condition for allowance of all claims remaining herein, and such action is respectfully requested.

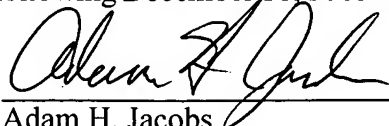
Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this Amendment for a TRANSONIC HULL AND HYDROFIELD III-A, Serial N<sup>o</sup> 10/774,728, was mailed by first class mail, postage prepaid, to Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 12th day of December, 2005, which is the first day following December 11, 2005 which is not a Saturday, Sunday or a Federal Holiday.

  
Adam H. Jacobs